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JOSEPH FREGA

AUTHOR OF A NEW

SYSTEM FOR TAILORS

With its relative teaching of the fashion,

Patented by the United States Government.



DIVISION OF PERSONAL MEASURES ACCORDING TO
THE NEW METHOD AND NEW PATENTED SQUARES.



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Patent, March 24, 1885.



NEW YORK.

1885.

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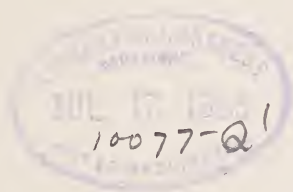
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JOSEPH FREGA.



Signature,



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NEW GEOMETRICAL SYSTEM

—FOR—

T A I L O R S ,

With Annexed Relative Instruction About Fashion.

*Exposition of Personal Measures, with a New
Method and Personal Squares.*

*Geometrical and Arithmetical Study of Proportions with rays and Diameters of all Shapes ;
Rules to Find their Superficies, the most
Exactly Possible.*

GENTLEMEN :

I beg your pardon, if I dare to appear before you with a publication. Perhaps somebody inclines to criticise it, without any accurate examination of the same, and without taking the care of seeing if the exposed principles may be of some utility for our society or not. To such a man I say : should you be not in degree of understanding my statements, come to see me, and I will be very glad to give the information you will need. But don't despise the alacre artist, who worked hard in order to discover the means capable of affording the desired perfection. and praise him if you think he is praiseworthy, otherwise make a reasonable criticism.

With such a hope, I give to my kind readers my best thanks and my respectful regards.

Yours respectfully,
JOSEPH FREGA.

The humble writer would be very glad, as everyone who studies and peruses, to see the product of his meditations put in the knowledge of all who like perfection and improvement; and at the same time to attire the attention of those who are of a discipline ignorant. Consequently, I would be proud to call on these lines the eyes of the tailors, my brothers, for the purpose of showing to them what amelioration I have secured to our art. But above all, I must say that, until now, nobody was able to give foundation to such an exact geometry, which could explain in the most simple and plain way all the mysteries of the proportions and divisions in our art. If somebody affirms so, he is mistaken.

From some geometrical treatises, it appears that the three circumferences of chest, life and trunk should be able, according to their ideal system, to make the full dress. If such a theory was right, we would not need other and several measures, in length especially; but we see that we require so many of them, that we must come to the conclusion that the system is an imperfect one, except for those artists skillful in the trade and furnished with a large personal ability. Now, the trouble is that nobody undertook to study geometry in its essence, so that to give the reader the capacity of fully understanding the rules and precepts. I would scarcely say to put the learner in a degree of cutting after the change of a new fashion, except for those furnished of sufficient natural genius, and who are able to modify or correct according to their own judgment.

All those who began a study like that, deceived and

deluded, because their aim was that of drawing profit from the pretense of exposing a noble science, but the public did not receive any help.

Moreover, these photographical schools, who incessantly give inventions of fashions and pictury, have to be praised for the amelioration, but their duty is that of helping the tailors with easy and sure geometrical rules from which springs the vitality of their commerce.

Instead of all that, the photographical schools always make a liberal show of thousands illusory fathoms, on the purpose of making you understand but a little of what their skillful genius did produce: the consequence is that people have to go to them for explanations, and then rewards are given and the business improves.

Let me say that those men, with all their demonstrations, notwithstanding their efforts to make people believe their ability are not in degree of giving good suggestions, because they know very little of the tailor business.

The secret of my theory is this: to let the apprentices understand that the entire tailor art consists in *cornices of different shapes, varied by the fashion with so many falls and figures.*

If you don't give faith to my words, admire their geometrical figures, carefully prepared, but in an open contradiction with what they stated beforehand, without giving the necessary instruction or idea to correct and modify according to the position.

Now, I abstain by giving the evident proof, reserved to be shown in case of provocation: should anybody

believe himself possessed of the knowledge of the tailor art, after having cut a great many dresses and habits, I would say to him that he came near the perfection only by practice, and not by studying the theory which enables him to perform models of every shape.

But, my dear gentlemen, I have to tell you one thing in order to have your attention attracted on these lines, in which a new geometry is exposed. I will tell you that it is impossible to give foundation to a new theory, if it is not supported by good reason and sound principle; and, in our matter, helped by the reflection in everything pertaining to algebra, arithmetic or geometrical proportions.

Gentlemen, what is geometry? What is the geometry given by everyone? A proof or experiment of models and figures with division or partition according to our own judgment. But my geometry has been exposed with evidence of proof, with irrefutable, clear, and full conscience, so that without any trouble at all, you can have models fitting to all the persons you have measured, with marvelous exactitude and precision.

Having been my geometry founded on the arithmetic calcul, it is very easy to find through its principles the quantity of a superficie and have it covered with stuff. After reading this method, it will be rendered very easy the truthfulness of this assertion: *all is based in finding the different rays of a geometrical figure*. Then you can obtain a similar one with the same position or shape, according to the rules, forms and instructions which every good tailor initiated to arithmetical or geometrical disciplines must know.

DEMANDS AND DILUCIDATIONS.

What is the human body? What is its shape?

It is of cylindrical shape, but irregular, with other branches of the same shape, pertaining to it, called arms and neck. The body in which you can very easily find rays and diameters, and consequently divisions and superficie with all the possible exactness, is a cylindrical one. Everyone can know the meaning of my exposition, and of course can be able to find the superficy of every piece of a shape whatever.

Gentlemen: I am positive in assuring you that a tailor with arithmetical knowledge may be in degree of giving foundation to a geometry, according to which, being so easy to find the partitions and divisions, every person, no matter what the age or the ability of a tailor may be, he can put in practice, provided they adopt my methods and models, fitting with all the possible exactness.

DILUCIDATIONS IN THE EXPOSITION OF THE INVENTION AND IDEAS.

My method.—Take the measure with a little machine, that divides the human body in four divisions: you will see the distinction among shoulders, belly, chest and inferior side, whatever the shape of a person may be; you will obtain the above said circumferences, divided with the geometrical rule, which is uncertain. This little machine will have an axle, ended in a point for the length of a centimeter: with that point you can obtain all the divisions of the human body with their rays, which you can easily

place in the geometrical figure, and the shape of the person you have measured. It will give you also the measure of falls and positions through other engines, by the same contained. I have also invented several squares and little machines, with other utensils, all patented, by which you are helped in the practice, according to the cutting of the dresses, for obtaining the lines and the shapes, that a drawing mater cannot have at once.

Each one of those squares has its reasons and practical exposition, of which I will speak. Moreover, I will have a very useful square for pants, that represents the models with such a precision to defy the printing itself. Important for cutting pants, as much for exactness of the lines than for the usefulness in wearing said pants without errors in the execution.

OBSERVATION ON THE STUDY MADE.

Gentlemen: My geometry don't give any annoyance to learners; it is rather amusing, because its exposition is so easy, and you can see the reason so clear and evident at once. The trouble is for the individual who discovered the truth.

I would like to prepare a long publication, but I reject this idea, only because I know that the principal merit of a work whatever is the conciseness and the speed through which you can come very rapidly to your conclusion.

The advantage for tailors, who actually are in exercise, and employed is a great one, enabling them to cut without mistakes.

I hope that everybody will give their attention,

those excepted. who like not the light and progress, but ignorance. For them it would be better to come forward and try to learn something new, especially when a man is introducing to you an easy, new, rapid method, capable of affording improvement and showing all proportions in the measures at one glance.

EXCEPTIONS, DESCRIPTION, FASHION AND PRACTICE.

To the kind readers possessing the technical knowledge in the Tailor Business :

I am exposing a work, spoiled with elegance, but useful in all times, among all people, in this new country especially, where illusion sometimes steals the place to the truth.

But encouraged by the desire of establishing a new method, though alone and humble, I begin my rapid demonstration. There is nothing complicated or mixed up ; here is an easy operation. By the help of the newly invented squares you obtain a division very precise, with a clear, easy method, out of the risk to be forgotten.

There is no danger in buttoning or rebuttoning the cloths, where you can see the usual mistakes when the division has not been made by the square, according to the position of the body ; the geometrical figure is not divided up in three circumferences as the teaching of my method requires. After this you have the dimensions of the chest, body and trunk, the most exact possible—you see the variations in the dimensions or the augmentations, and if these take place in the forehead, belly, shoulders or back—you

can have the regular shape of the body to be dressed, so that you can avoid all mistakes, that is not practicable, but the true exposed theory.

The American and French systems have themselves their particular method of division, but my square, for its clearness of execution in marking when the measure increases or diminishes, has no equal. The more you know about geometry, the more you learn, especially if besides the study you are furnished with experience and genius.

EXAMINATION OF THE NEW GEOMETRY.

The photographic schools, supported by so many utensils and instruments, are in degree of performing ideal imaginations, splendid and lively: for us, executors, it is another thing, because we have to help ourselves by the observation, the columns, the exactness in the measures of a real person. The photographic schools have no control, like a clerk, who spends his master's money at his own will.

But we have our control: consequently we must be very careful and employ judiciously, models and figures, following the advices given in this little work, divested of all pretensions and elegance,

Gentlemen: I am glad to say, that besides the exposition you can easily understand by reading it, I offer myself, in order to remove all difficulties and objections, verbal and experimental explanation, by calling on me. Still, I am positive that after reading these lessons, no doubt will occupy the reader's mind, my method being so clear, enabling us to have excellency in the divisions and figures, as far as cutting every stuff upon my models, sure of a perfect execution.

I confide that the public will take interest in my invention ; what they will surely get, is a considerable economy of money and time, unavoidable when you meet with the errors of a false system.

Being so short a time required by my method to be accurately learned, so that every apprentice may, in a little while, raise to the knowledge of one who is old in the trade, nobody will refuse to accept it. The only difficulty consists in the measures and divisions, but the squares, when judiciously employed, will help you marvellously. The private families could take advantage from this method for their girls, having established a place to give lessons at moderate rates.

DEMONSTRATION OF THE MEASURE.

Jealousy among Artists—Geometrical School.

Gentlemen : I hope that the public will not be hard with my system, whose excellency has been proved. I hope that countrymen of mine, Americaus and strangers will come and see the material and application of my instruments. I assure you that you will find models of such a precision, to satisfy the most whimsical lady, in the *toilette*.

Bear in mind, be exact in taking the measure, and ask if the habit must be worn away with the same network, or if a modification is desired.

My kind readers, remember that in all my life I had the opportunity of making a great many reflections, which I desire to put at general profit.

Above all, don't forget that any geometrical school is not able to give you an exact idea how to cut the cloths, if you are deprived of your own experience.

In every part of the world—in the greatest cities—I have lived, I never released myself by paying visits to the best tailors, who honar our art through their genius. Neither have I forgot to employ every means in order to get well acquainted with them, so close, as to discover their merits and peculiar manners. Sometimes, I used to make arguments with them, in which I always tried to make my demonstrations as clear as possible. The heart of a civil person is not impaired by the worm of envy. I never was jealous of anybody, but I took advantage by employing my observation, in order to improve in my trade. I always made use of a particular industry in discovering the degree of other people's perfection and put it in comparison with my own.

But the unfair truth is, that both in the United States as in South America, the greatest part of our brothers in the trade are jealous of each other, and everyone thinks himself the best. There are, luckily plenty of exceptions, and I know distinguished men who do their best to help and instruct ignorant people. As for me, here I am, ready to instruct and explain and render my method the most rational and solid one known by all. Come, dear brothers, and you will see how simple is my manner in cutting, easy to be learned, without difficulty and trouble.

KNOWLEDGE NECESSARY TO PUBLICATIONS RESPECTABLE LADIES :—

Followers of the fashion, I abstain by writing about it so many words, as they usually do, illusory and void. When a youth, I used to be a cutter in all

kinds; esteemed as I was by every family, on account of my irreproachable exactness in cutting cloths, and the patience by which I used to arrange flocks and ornaments in the chest for dancing cloths, the puffs in the back, so that you could use them at your pleasure. I then transacted a splendid business.

Now, I have to add that great care must be taken in the measure of dresses and overcoats, being in need of no models, as so many use to do. If anyone employed in a great manufactory has any doubt about my method, let him come and by the help of some pictures he will be out of trouble.

NOTICE TO PERSONS DESIRING TO TEACH THIS METHOD AFTER MY PERMISSION.

Having at length proved the great amelioration afforded by my method, should anybody be willing to teach this method in the town or city where he lives, I am glad to say that I will grant him a *patent*, a copy of that granted to me by the United States Government.

USEFUL NOTICES TO BE CONSIDERED BEFORE BEGINNING THE EXECUTION.

Before the explanation of the pieces, mind that the rectangle must be two inches greater, viz., one-half an inch (the quarter); a quarter in the posterior part; an inch for two internal seams, so that you have the two inches above said. Moreover if you take a tighter measure, you must consider the deepness of the lining, in order to obtain an exact result.

I know that every one has his own use in taking the measure, but I would let understand that it must be always free. Placing the rectangle with the position of the falls and lengths, mind that the vertical line must come in the quarter of the shoulder (quarter of the back). If you proceed in different manner, the circumferences will be not exact, and the result no good.

If you are a milliner you must employ a greater attention in taking the measures, especially in the chest, where the execution must stick to the measure; a little less in the life; in the bust a little more, in order to have not mixed the several circumferences in the habit, which, being too tight, would look not well.

EXPLANATION OF THE SQUARES.

FIRST INTERESTING SQUARE.

The first brass square is the most interesting; it gives measures and divisions quite exact. It will be fixed the arms: it has a small moveable staff and a fixed one. The latter must be placed in front. In the angle of such a staff is a pivot, pointed, which enter in a second pivot, in order to keep the square in a vertical position. Then the second little staff is closed up to measure the deepness of the arm: afterwards an other small staff is downed and so you obtain a rectangle, in which you can draw an exact circle in the very side. without any danger to touch any side.

In the pivot of the fixed staff is another point, by which you take all the rays you want, according the difficulty you can observe.

DEMONSTRATION AND THEORY OF THE FIRST SQUARE.

THEORY THE FIRST.

As for instance in the theory of the rays in the first figure: the front rays are *A, B, C, D, E*. Take the angle *F* and you obtain the prospect rays: turning the centimeter in order to take the rays of the shoulder, beginning from the flank according to the demonstration of the rays *G, L, F, M*, so you have all the rays of the rectangle, with placement of points in the shape of the person.

NOTICES FOR DEFECTIVE PERSONS.

Let us consider a man too thin in the shoulder, and a humped-backed one, between the points *F*; and *M*. It is necessary to have another point, in order to sign the position with more precision. If the man is a hump-backed one, the fall in the back must be longer than the quarter, the flank a little shorter in its superior part.

Should the person be a thin one, the line of the shoulder must be the most vertical possible: a little less than the fall of the shoulder, in order to have the same interval, with no fold at all.

SECOND DEMONSTRATION OF THE SAME SQUARE.

THEORY THE SECOND.

Said square has a small staff, which may be turned in a vertical position under the arm, and which you can see in the theory, placing an inch and a half far

from the pivot of the fixed staff. It represents the central point of every ray. Fixing such a staff with a line, in the exception, you will obtain the figure with exact divisions and shapes.

DEMONSTRATION ON THE SHAPE AND POSITION OF THE BODY.

THEORY THE THIRD.

Practicing in the exposed manner, so easy, in the division of the body, it is clear that you can direct the measure according to the position of the body itself. Following such a rule, no matter if the person is a thin or a fat or a hump-backed one, the circumferences will be always regular, and the superficies true.

Placing the point of the vertical small staff, the flank, shoulders, front side, etc., will be exactly obtained, and so the shape of the entire body.

The vertical line represents the staff. Consider the circumferences $B, N, J, — A, G, L, —$ and P, O, Q . We have obtained them not according to the common geometry rules, but measuring the spaces between $N, B, — N, J, — G, O, — G, L, — O, P, — O, Q$. So in a more efficient manner, you have the wanted results, and you know what is the shape of the person.

DEMONSTRATION OF PIECES IN EVERY MODEL.

THEORY THE FOURTH.

With my method of division, placing the central point, which is the pivot of the fixed small staff, then

the vertical one, you can find the position of the body, as the little tonic. Placing the rectangle, you can have every cut—for women, if dress and cloak-makers, and for men, if tailors. But never forget to be scrupulous in the measure, for it is this that the business depends on.

The waistcoat may be executed on the same rectangle, but it must be a little larger in the neck, in order to avoid a new trouble in the division.

Desiring to cut two or three different cloths at once, take double paper and make the division of all of them; then use a small invented wheel, which marks them one by one; take off the first and mark the second; take off this other and you see the third already marked with chalk.

Take advantage of this method: you don't need a long experience, because the practice is so easy and clear.

The first and second figures have the same movement in every position, as it is seen in *B, H, P,—B, C,—D, E,—E, F,—X, U,—X, Z,—M, J, L, S, R,—S, S.* The same is the movement for every cut, but the dress and cloak maker will consider some variations in the internal side.

As you see considering the measures *N, J,—G, L, O, Q,—*the three semi-circumferences of the shoulders may be found by the movement of the square pieces: in the same manner may be found the measures *N, B, G, A,—O. P.* In the movement *O, P,* that in the front side will let you know if the person is thin or fat—the other *O, T, Q,* what is the greatness of the back—*O, P,* signs the line you must draw, and as it must be

directed between *A*, *B*, and *B*, *C*. When the person is too fat make a rapid movement, and diminish in the flank what you have increased in front; beat well in the shoulders; take more than the measure shows, so that you can have the quarter in its true position with a longitudinal fall, without shortening the quarter; so you may do for persons who prefer a large fall in the chest, or a large internal in the flanks.

To be surer between the point *B*, *C*, you measure the height of the point *C*, which has to be found in the right place.

If it is a ladies dress, pay attention to the measures of the posterior lengths in the quarter, as in the anterior ones: but you must pay the greatest attention, not only to obtain the proper fitness in the neck, but also for the position of the chest: therefore, besides the position *C*, *B*,—*A*, *P*, and *B*, *A*, we must fix the point of the chest according to the position of the person.

My method will show you the most plain way in the execution of the falls, borders or brims, folds and so many other advantages of less importance.

GENERAL NOMENCLATURE.

THEORY THE FIFTH.

After we have done all that, an exact folding of the chest is desired. You can have it after you have found the point *C*. Inquire about the number of the neck, and curb the centimeter accordingly, in order to have a circle by the guide of a ray. He, who is not furnished with a sufficient arithmetical knowledge, will be a little puzzled. Ask how high the neck must be and how

the under-neck of the habit must be placed ; then you make a general calculation, and you draw accordingly the square between *H, D*, which will determine the fall of the chest. Being not used in repeating what has been explained, mind that when you take the ray *D, M*, make it not very exactly, in order to have the right measure ; all that will give you a nice execution around the neck ; and the anterior quarter will fall vertically. Moreover, the posterior quarter will be placed in its right way, and the full dress will look nicely. You must remember that the part of the habit pertaining to the shoulder and neck is right in proportion with the vertical position of the posterior quarter, so that the more the quarter is tight, the more the under part of the dress must be retained, otherwise it will be opened. The under part of the dress (*gonnellino*) may be cut as a ball shape or in a cylindrical one ; some are semi-curved in the superior part and have a great circumference below ; some have a smaller circumference underneath ; some have a cylindrical fall, which you can perform by paying attention to the point *G*, that must be repressed and not swell up.

Proceeding in this way, the *gonnellino* will keep regularly in its own way, and will fit to the person admirably.

My dear reader, you will please to pay attention to what I have said : I am acquainted with so many persons, who are ignorant of these rules ; their works are defective, and then they have great trouble in correcting them. Men, on the contrary, who are acquainted with rules, are always sure

of their work, and do not have the displeasure of perceiving any mistake.

FOR PERSONS DEFECTIVE IN NECK AND SHOULDERS.

THEORY THE SIXTH.

If a person is defective in the neck, mark in what side it arises and on what side it comes down. In the first case, cut half an inch, which has to be allowed to the quarter. In the other case proceed in an inverse manner. Observe the right measure for the shoulder under the side where the neck is inclined; the same is for the shoulder a little higher. The prudent tailor will be very cautious, but I write for those who don't care for some important observations, and then they can unreasonably criticise my methods.

MANNER TO PLACE THE RECTANGLE— DEMONSTRATION AND DIVISION OF THE FALLS.

THEORY THE SEVENTH.

Now I will speak about the cause of so many errors, caused by the wrong placement of the rectangle.

Taking the measure with the first square, consider the deepness and the height of the arm, for instance, if I say: take four inches in breadth; the turn must not be of four inches, but the seams must be according to the stuff, if you want to have an exact circumference, considering that the seams in the back and in the flank are equal in breadth and height with the expression *D*, *R*.

The manner to proceed is this : place the rectangle, which you obtain by discomposing the measures, and you will see the variations between the sleeves and the fall in the shoulders. Consider that the more you lower the posterior fall, between the angle D, V , the more you must rise the quarter D, J . The director of the work has to keep all that into his mind and have it exactly observed in practicing. Lower the fall in the back between D, V , in order to have a sufficient largeness in the shoulders. Some use to make the cloths very tight in the shoulders, but it is a great error, caused by placing the point M in the lengths M, J, L . an inch under the line. Such a dress is convenient for exquisites, not for gentlemen.

It is better still, to take your ray in the point M , draw by the machine the convenient line, and then make the posterior fall, according as it is signed by the machine in the extremity of the quarter.

HOW THE SECOND SQUARE MUST BE USED.

THEORY THE EIGHTH.

The second square is used independently of the *theory of the movements*. It has two lines, that of the superior part, and of the inferior one.

Place the rectangle of the quarter with its convenient vertical line, then draw in square the line L, Z , and from the same line, rise in square line to the line Z , as far as the little sign, proportionally to the back side : $2\frac{3}{4}$, $3\frac{1}{2}$ or 4 inches ; then take said square and place it between the interval of the little sign and Y : put it in movement upward and downward according

to your own judgment. Mark a cross in the first internal curved line of the square, then the external curved line, and place it in right position to the first sign even to the second line; then trace the curved line of the flank, keeping the same position between the first marked line and the internal curved line of the square, and you obtain by the movement of the measure *X*, *U*, and *X*, *Z*, an exact flank, which will fit irreproachably to the person.

EXPLANATION ABOUT THE THIRD SQUARE.

THEORY THE NINTH.

The third square is useful to *jacket* or *overcoat* or *chemis* both for woman or man. It has in the middle a line, that works the central part of the body; it has two principal movements, the first according to the measure required; the second according to the exigency of the bust, as you see in the points *R*, *S*, and *S*, *T*.

Repeating the operation at several reprises you can obtain the lineal precision, for the back as for the quarter.

Mind that the square is moved between the latter and the trunk. If you desire a greater circumference, mark the line or diminish it, without causing any mistake.

EXPLANATION OF THE FOURTH SQUARE.

THEORY THE TENTH.

The little square will help you in obtain exact falls in great speed, both in the quarter than in the back :

in the same time it gives the measures of the two falls exactly, because it is numbered in the same manner in the curved side and in the semi-right one.

This square has, like the others, two movements, and according is required by the measure of the ray of the pivot and the points *M* and *F*.

Such an application will give you the intervals of the fall in the back and in the quarter.

EXPLANATION OF THE FIFTH SQUARE.

THEORY THE ELEVENTH.

The little square gives the curved line convenient to the grace of the little chests. Place it between the points *D* and *C* and be sure of the result.

EXPLANATION AND DEMOSTRATION OF THE SIXTH SQUARE.

THEORY THE TWELFTH.

This square has the privilege of giving the most perfect execution of the chest, in two or in one : no matter if you are practising since ten years ago, or you begin now.

The two lines, which at their end meet each other, sign the *reprise* in the cut at one chest. The first line marks the position of the point, which is convenient both for a single than for a double chest : the second line shows the position of the reprise in a double chest only. It is a sure guide in the execution of the broken chests, depending that by the position of the body. The little sign mark the end of the collar in the single chest, the other for marking the

extention of the same. But in this, an useful instruction is given by the falls and the measures.

EXPLANATION OF THE SEVENTH SQUARE.

THEORY THE THIRTEENTH.

The little square is important for the chests in the summer cloths, with long neck.

The chest is folded deeply with a semi-curved line in its superior part. With the same square you can amend this important part of the dress of every mistake.

LITTLE MACHINE GOOD TO EXECUTE CIRCLES OF EVERY SIZE.

THEORY THE FOURTEENTH.

I have also prepared a little machine, which may be enlarged or closed at your own pleasure, designing all kinds of circles, without changing the direction in the movement. Such a machine must be placed at the extremity of the quarter near the pivot, a little below the line of the circle in the *fall*. You will obtain in a sudden a regular circle, which a drawing-master cannot obtain in such a little while.

DEMONSTRATION OF THE EIGHTH SQUARE.

THEORY THE FIFTEENTH.

I have a very useful square for pants, which gives such a perfection in the execution, as to be said that a pair of pants have been executed by a painter. It is proper to give grace to the front quarters and to the superior ones.

You place it on the line *E, S, D*, in a parallel position with the line of the square ; so you obtain as it is seen in the points *C, E*, a perfect *squarcio* in the *fintone*.

But mind that you must know the geometry of the pants theory which is widely exposed in this treatise,

This square may be used in pants belonging to every person ; use the most curved part for the fat men, with the same method of movement, and you need not be afraid of any mistake.

DEMONSTRATION ABOUT THE GONNELLINI.

THEORY THE SIXTEENTH.

It is easy to obtain every shape of *gonnellino*, remembering the exposed reasoning, only you must pay attention to the points *G, C, O, E*, in order to know the position of the buttocks and in the marked point draw the curved line of the *gonnellino* between the points *C, E* ; draw below it the semi-rectangular line, according to the cut of the habit which is desired, the length of the *gonnellino* and the shape requested.

As for the habit closed or opened in front, mind that you must know how much it must be opened ; mark the point, and then mark, for instance, four inches with the exact proportion, beginning from the points *P, O*, with the relative fall in the back.

LOGICAL TALK.

THEORY THE SEVENTEENTH.

I think that the reader will give to himself an ex-

act account of my method, supported by so many reasons.

By the help of such a demonstration you may understand that from my method of placing the rectangle is originated an exact quotient, which is the breadth of the shoulders. Here is the relative demonstration. Having a control point from which every ray is originated, it is clear that it has originated the point *B*, too; fixing the depth of the arm, marked with the point *D*, we can know the point *F*, or the distance between *Y* and *Y*, excepted for the defective persons, the hump-backed especially.

By the scrupulous application of the given rules, you may see at once if any error has taken place, for instance in the sleeves, which you can correct, together with the errors in the rectangle or in the measure.

Gentlemen, as for the bust, I have told you so many advices, that it is of no use to repeat again. But I beg to pay your attention to this method, a little difficult, perhaps at first, but after a while it will be very clear and plain.

But until now, the habit is not complete; it leaves the sleeves, the most difficult part of it, from which so many errors can be created, as the following will show:

THEORY AND PRACTICAL EXECUTION IN THE SLEEVES.

THEORY THE EIGHTEENTH.

I have so well studied the division of the sleeve, and I have come to the conclusion that an average in certain measure may give you sleeves of surprising

perfection with regular precision and fall.

Here you have the demonstration. Mark what is the height between the point *D* and the pivot: so long must be the inferior part of the under arm, signing it with a line made square. But as the superior part of the arm wants three inches more, mark $\frac{3}{4}$ of an inch upon said line, in order to have the curved line of the superior arm meet with the second line.

This is known to everybody; the sleeve depends on the height of the shoulder, which explains to you at once the height required.

Now, I have to show the position of the breadth between the fall of the shoulders and that of the front.

The front division is begun from the pivot as far as the center of the fall in the shoulder, which is marked by the sign * and from this sign an inch under the seam of the back shoulder, marked with the sign * See if from one inch under the seam of the back you have three inches or more, and establish the proportion accordingly, which is marked by the point *B*, that marks the same division *center shoulder* signed by * and that expressed by *B*.

You have observed that the sleeve has been performed in a manner, that the seam of the elbow has the same distance as the sign * center of the shoulder; viz: between the point *B* and the seam itself, which corresponds exactly to the sign * and one inch under the back seam. Then you proceed, beginning from the point *B*, as far as the point *C*, drawing a curved line. This gives an advantage and it makes you know two circumferences, always exact, through the

little machine. If you make these circumferences at sight, you may incur mistakes, as so many tailors, who repute themselves skillful enough to perform everything. But the mistakes take place, and then you have a great trouble in having them corrected; or the proud tailor will impute them to the men he has under his direction, in order to save his reputation.

But my method in working the sleeves, is so easy, that everybody can go on without no trouble at all, and make sleeves of all sizes.

NEW GEOMETRICAL METHOD FOR PANTS.

THEORY THE NINETEENTH.

After a complete exposition of what is pertaining to overgarments, let me come now to another important part of our dress—the pants. What has been said before must be remembered now: it is, that my method for simplicity and clearness outdoes all methods.

What is a true definition of the pants?

They are a cylindrical body, which is divided up in two branches, covering the legs, whose execution is various according to the fashion. But that manner is good, that results in satisfaction for exactness and falls.

I let aside so many proportions and observations sometimes so puzzling. I will talk about the construction of the trunk, also, that of the legs, to be considered in two different parties: the superior and the inferior quarters.

Now, if I ask to some geometrical tailors, so learned

in proportions and divisions : is the circumference of the thigh equal to half a part of the circumference of the trunk, they will answer, of course ; no ! But notwithstanding the difference, the division will be very easy, supported by a few rules, for instance, we have this measure of a pair of pants : cincture, 34 ; trunk, 40 ; thigh, 25 ; remembering that the pants may be divided in four. In order to avoid mistakes, consider the fourth of each part ; so for the 34 we have the fourth as $8\frac{1}{2}$; 10 for the 40 ; $13\frac{1}{2}$ for 25, the half, not one-fourth, because as we said, the latter has two parts only, now four as the measure of the cincture and of the trunk.

OTHER DEMONSTRATIONS.

THEORY THE TWENTIETH.

Having explained everything, now we can begin the demonstration as to execute.

Place the rectangle according, we are instructed for all ; draw the square line *H, B*, and *B, A, U*. Mark the *spur* with the points *D, C*, the knee with *A, G*, and the entire length with *N, U*. Then in the line of the *spur D, C*, which represents the width of the quarter of the trunk, mark the line *C, E*. Then taking the fourth of the cincture $8\frac{1}{2}$, beginning from the point *E*, as far as the cipher $8\frac{1}{2}$, mark the curved line *R, D*, minding the space required by the seams, in two inches almost. Now we are through with the quarter laying between cincture and bust : it follows the division of the spur, very easy to be obtained, if you proceed with simplicity and correctness.

Let us consider now the circumference, which is

divided up in four parts ; take one-quarter, two more for the thighs, and see what is the difference between the quarter of the trunk and the half of the thigh ; it may be of $2\frac{1}{2}$ or more, and you execute the *spur* accordingly. In such a manner the division will be a regular one.

Be what may be, the division is always equal, provided it will be the same in both parties.

Pay your attention to the letters *C, Z* ; mark the height of the angle at its third part, and see the difference between the half part of the thigh and the quarter of the trunk ; if it is $2\frac{1}{2}$, mark $3\frac{1}{4}$ the height between *C, F*, and 1 for what it takes by the seam ; make the quarter of the *fintone* for the grace of the quarter.

The pants will fit nicely to the person, if all the given rules will be observed, and the diameter of the circumference well measured, which you find in the points *E, H*. If it is $3\frac{3}{4}$, add $3\frac{3}{4}$ to the measure of the line *H*. If the diameter is $12\frac{1}{2}$ of the circumference, No. 40, mark with $12\frac{1}{2}$ the distance between *H, E*. So you have obtained the parts with the relative diameter ; chnsider that the semi-curved line begins from *B, J, E* : the height of the same from *J, C*. So you make the quarter with a little varlation. Make the height of the line *F, L*, equal to the difference between the half part of the circumference of the thigh with the quarter of the trunk, besides the space occupied by the seam.

We have to establish the distance between the point *J, M*, that represents the quarter of the cincture of the inferior quarter. It must not be equal to the

cincture itself, but that it be convenient for the re-
prise. It is best to make it equal to the difference
between the quarter of the cincture and that of the
trunk, but a little less.

CONCLUSION.

In order to have the pants very tight, nicely and properly arranged, the division must be not equal in width in both knees, but from the exterior side one inch must be cut off and added to the interior part.

As for the other parts, *fintone*, under—*fintone*, *span* even when you have to make pants for defective persons (ruptured or big-bellied) I have some observations to make, reserved to be verbally exposed to those men who will personally call on me. By-and-by I will prepare some pictures good for the demonstration of what is above said: then every body can spare to himself the trouble of paying me a visit.

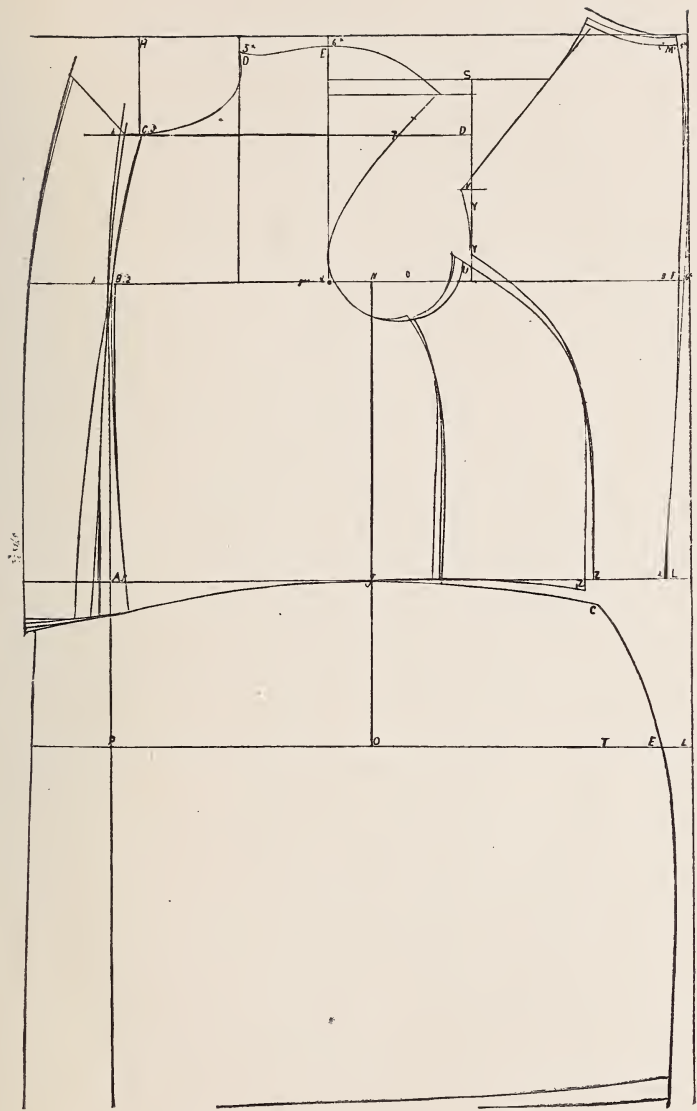
KNOWLEDGE ABOUT THE DIAMETER OF EVERY CIRCUMFERENCE.

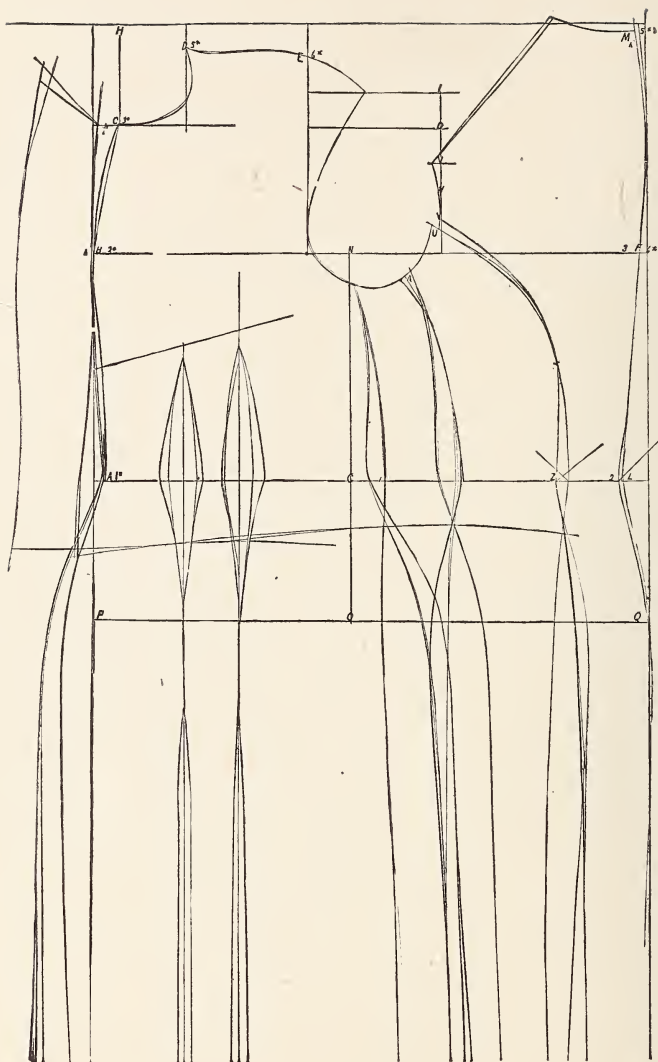
Bisedes the *scala* of evidence, presented to you, I will notify you the proportion by which you can obtain every circumference, proportionatly to a diameter: it is of thirty-one and a half per cent., viz., ten inches of circumference give three and one-eight of diameter, with a very small difference. When the shape is irregular, there will be the 10 per 100 more of diameter, viz., forty-one and a half.

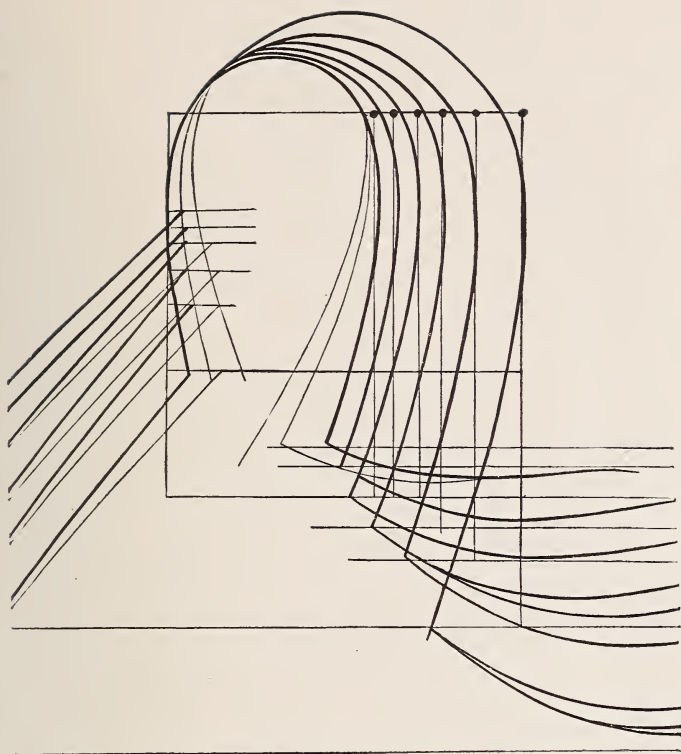
KNOWLEDGE SCALE

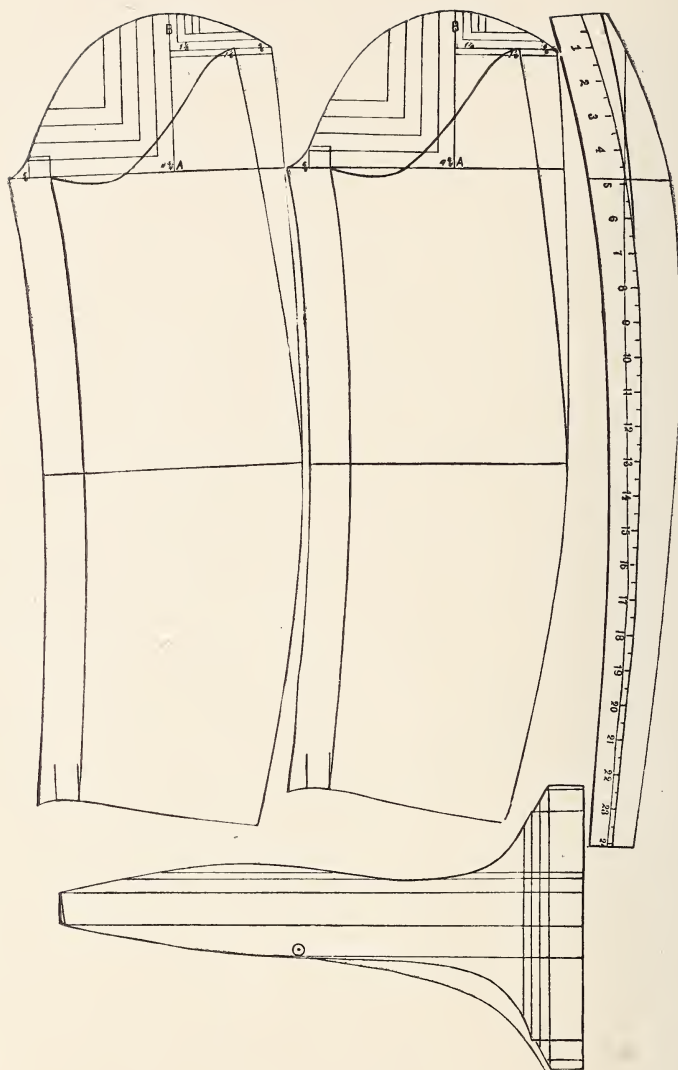
HOW TO KNOW THE CIRCUMFERENCE AND DIAMETER

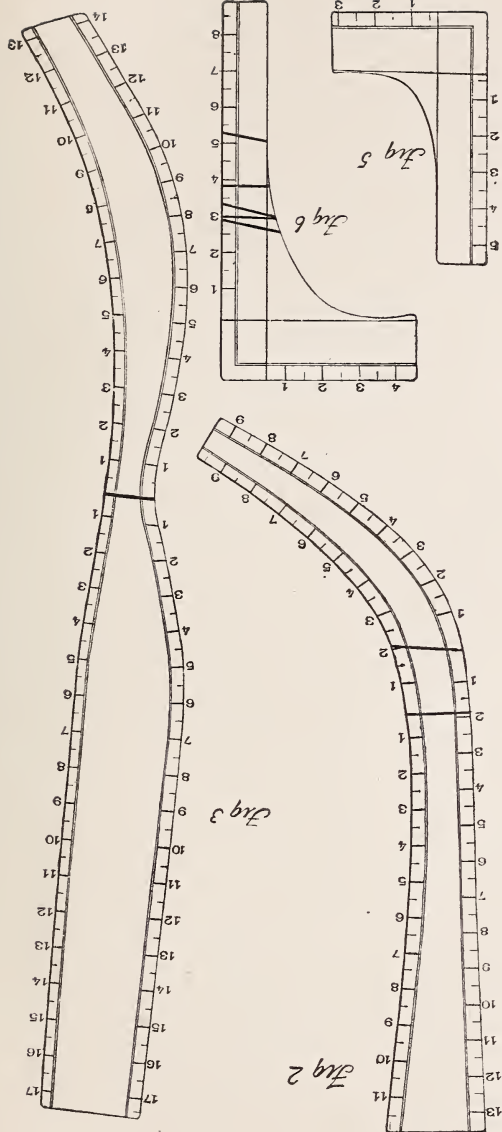
Circun- ference	Diameter	Circun- ference	Diameter
1	$2/8 \times 1/16$	22	6, $7/8$
2	$5/8$	24	7, $1/2$
3	$7/8 \times 1/16$	26	8, $1/8$
4	$10/8$	28	8, $6/8$
5	$12/8 \times 1/16$	30	9, $3/8$
6	$15/8$	32	10
7	$17/8 \times 1/16$	34	10, $5/8$
8	$20/8$	36	11, $1/4$
9	$22/8 \times 1/16$	38	11, $7/8$
10	$25/8$	40	12, $1/2$
12	3, $3/4$	42	13, $1/8$
14	4, $3/8$	44	13, $3/4$
16	5	46	14, $3/8$
18	5, $5/8$	48	15
20	6, $1/4$	50	15, $5/8$

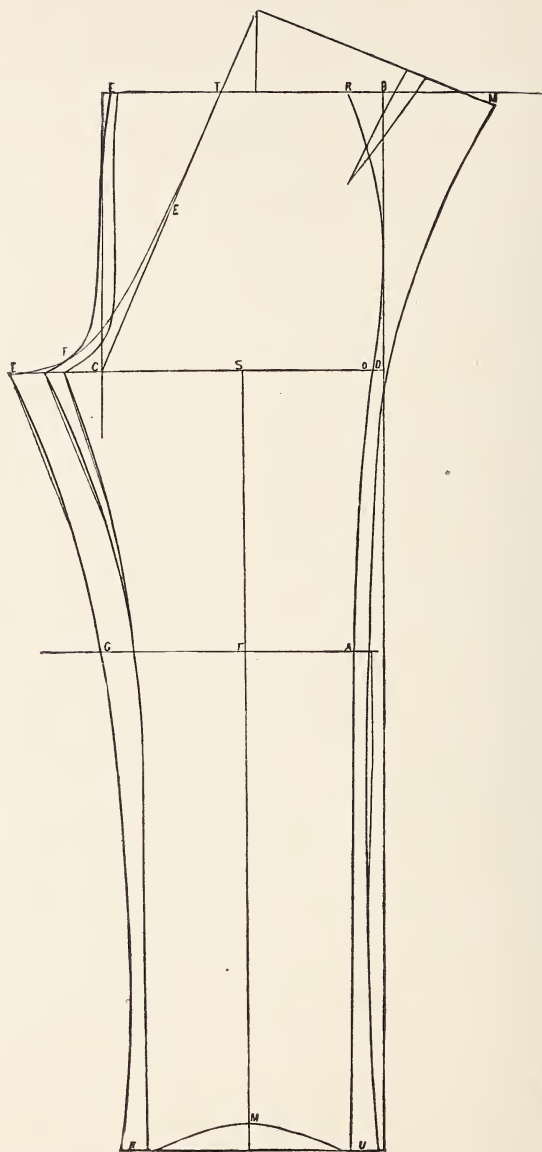


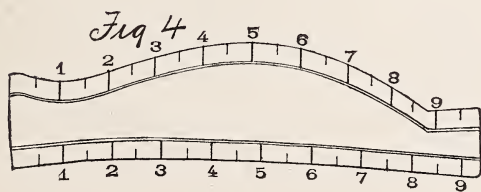
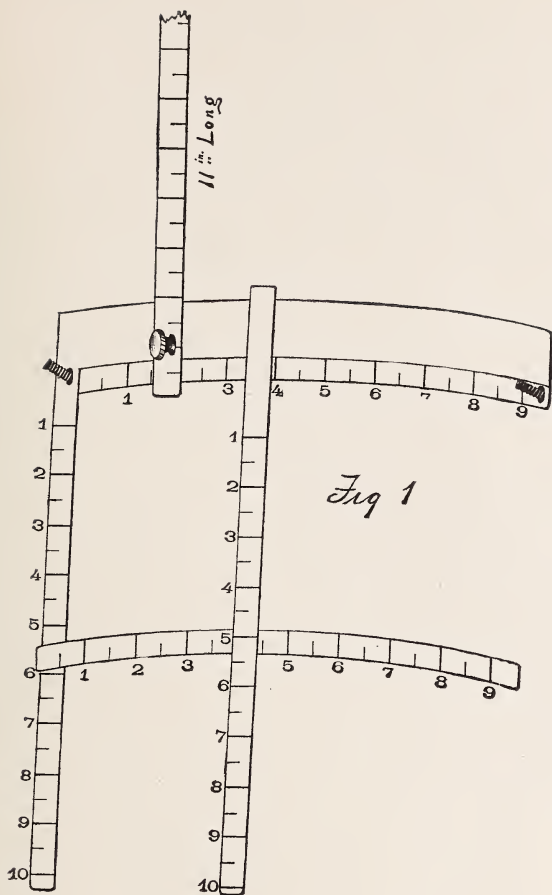












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